

THURSDAY, JULY 28, 1904.

THE GEOLOGIST AS GEOGRAPHER.

North America. (The Regions of the World Series.)

By Prof. Israel C. Russell. Pp. viii+435; 7 coloured maps and 39 other illustrations. (London, Edinburgh, and Glasgow: Henry Frowde, 1904.) Price 7s. 6d. net.

THE geologist might well rest content with the usefulness of his science even if its only harvest were the revolution which it has wrought in man's conception of his mundane surroundings as expressed in the new geography. It may be that here and there the geographer still lingers who is satisfied to bound his ideas at the surface of things and to lose hold of reality in his dream of eternal seas and everlasting hills. It is true that the old geography still persists in children's school-books as ancestral customs still linger in children's games, and that the delineation of county boundaries and the names of obscure villages are still drilled painfully into the youthful mind as essentials of earthly knowledge. But the antique trammels have at least been loosened; and not in the Americas only is it that a new world has been discovered by the geographer.

We could not wish for a better exemplification of new spirit than may be found in the lucid description of a great continent which lies before us. Prof. Russell quotes with approbation the saying that "geography is the geology of to-day," and throughout his book we are made to feel that in its every aspect the present condition of the land is the evanescent expression of all preceding time. It is not without cause that "prehistoric" time is relegated, in his chart on p. 309, to the period preceding the Archæan, and that from the beginning of geological evidence he regards all time as historic.

To the geologist the sea is only land inconveniently covered by water, and we are therefore prepared to find that Prof. Russell's idea of the North American continent is not bounded by the coast-line, but includes the submerged "continental shelf." The first chapter of his book deals with this shelf, its structure, its river valleys, its marine life and its geological history, with that of the land margin by which it is bounded.

Then, in chapter ii., the topography of the land is described under the broad headings of (1) coastal plains and plateaus; (2) Atlantic mountains; (3) continental basin; (4) Pacific mountains; (5) Antillean mountains. This part of the book is vitalised by the author's wide personal knowledge of the continent, gained in the service of the U.S. Geological Survey, and by his keen sympathy in wild nature. With vivid touches of description, sure and true, and free from the cloying sentiment by which such attempts are too often overclouded, he brings before us the feeling aroused in him by the varied scenes of the wide continent. There are many passages which we should have liked to reproduce, but, lacking space, we must content ourselves by referring, as examples, to the bird's-eye view of the

prairie plains (p. 97); to the expression of their straining monotony (p. 103); to the sketches of the fantastic Bad Lands (p. 111), of the glorious summits of the Californian Sierra (p. 151), and of the dense forests around Puget Sound (p. 240).

The third chapter deals with the climate of the continent, and, like every other part of the book, goes back to first principles in the course of the exposition, so that the untrained reader may gather much general as well as special knowledge by a studious perusal of it. We imagine that if the writer had been a Canadian his southern boundary for the "boreal zone," as shown on the map, plate iii., would have been somewhat differently arranged, and that it would not have included Vancouver Island and the coast of British Columbia, nor have divided Manitoba from the greater part of North Dakota. The description of the agriculture of this zone is contained in the following sentences:—

"On account of the low mean annual temperature [of the northern portion of the zone], and especially because of the shortness of the growing season, agriculture is of small importance. Along its southern border, more especially in south-eastern Canada and Newfoundland, such small fruits as currants, huckleberries, raspberries, blackberries, cranberries, &c., grow wild and yield abundant returns when cultivated. In favoured localities white potatoes, turnips, beet, and certain varieties of the apple, as well as the more hardy cereals, are cultivated with moderate success" (p. 202).

As practically the whole of Canada, except small portions of the south of Ontario and Quebec, is relegated to this zone, the above statement is decidedly inadequate. We notice also that in the margin of the map referred to there is a letterpress indication to symbols which are not visible on the map.

The plant life of the continent is described in chapter iv., wherein the characteristic features of the great forests, the cactus plains, the treeless prairies, the sage-brush lands, and the Arctic tundra are in turn presented. In this part we recognise that the author shares the repugnance felt by every good American to the term "desert" as applied to the arid lands of the western States. So, in the map which forms the frontispiece to the volume, all the sage-brush and cactus country is swept into the "grassland" division, to which term, however, the qualification, "partly with Scrub, &c.," is added in the index. Yet, even allowing for the potential irrigation of limited oases in the future, there are vast stretches that must remain, as at present, worthy only of the name of desert, and such herbage as they have is desert-herbage. In concluding his account of the plant life, the author refers briefly to the slow migration of forests under geological changes of climate by which nature, like a careful husbandman, secures a rotation of crops.

"The suggestion in this connection furnished by geologists is that we are living in a spring-time following the great winter, known as the Glacial epoch, and that the tropical, temperate, and subarctic forests are migrating northward in an orderly march, and each in turn ascending higher and higher on the more lofty mountains" (p. 257).

The discussion of the animal life occupies another chapter (v.), and here we are given a succinct account of the life-regions and life-zones, with lively descriptions of the best known representative mammals, in which again it is shown that America is or was blessed by the abundance of large herbivores and the rarity of dangerous carnivores. And how ill she deserved the blessing is also shown.

As for the birds, why!—"when one attempts to write an account of the birds of North America, the heavens seem darkened with such a multitude of varied and beautiful forms and the air filled with such a discordant clamour mingled with the sweetest of music that failure to convey an adequate idea of the countless numbers and diversity of the feathered throng within the compass of a few pages must be recognised from the start"—wherein, somehow, we feel that The Eagle, for once, has flapped his wings.

Chapter vi., describing the geology of the continent, is the longest in the book. It claims, and defends the claim, that North America should be regarded as "the most typical" of all the continents by reason of its comparatively steady growth from one main nucleus and the resultant simplicity of its general structure. An outline of its evolution from the earliest recorded time is presented, with the inevitable incidental exposition of the fundamental principles of geology; the relation of the past to the present is clearly brought out; and the mineral resources of the continent, but more especially of the United States, are somewhat fully reviewed.

Then follows a chapter (vii.) on the aborigines, in which the author guardedly agrees with Powell "that the primordial occupancy of the continent antedates present geographical conditions, and points to a remote time which can be discovered only on geological and biological investigation" (p. 357), and he states the lines of evidence which have led to this provisional conclusion. The sad history of the outcome of the European invasion upon the original inhabitants, whether Eskimo or Indian, is briefly retold, and it is acknowledged that the Canadian Government has been less unsuccessful than that of the United States in its dealings with the natives; but the whole record is pitiful.

It is mentioned in the preface that much curtailment was found necessary in the treatment of the economic phases of geography, and in a foot-note, reference (p. 408) is made to the omission, through exigencies of space, of chapters that had been written on the geography of fisheries, forestry, mining, commerce, agriculture, &c. As it stands, the book is so full of information that he will be indeed a hardy reader who can assimilate all that is provided and still desire more. The volume concludes with a short chapter (viii.) on political geography, and in the foot-note already referred to it is explained that space has been found for this part "for the reason that it presents a view of political adjustments not usually taken and in a way perhaps pessimistical, which may awaken opposition." The different kinds of political boundaries to be found on the continent are then con-

sidered, and a lament is raised that so many of the boundaries should be arbitrary where the conditions were so favourable for an ideal subdivision of territory. Here once more the wings of The Eagle are spread. The essential conditions of an ideal nation are defined (p. 421)—conditions that naturally find their fulfilment in the United States. Then (p. 423):—

"In North America, perhaps, several such eligible sites for a definite number of people might be chosen, but in no case without the drawing of unnatural boundaries. The continent, as is shown by its geology and geography, is a unit, and the most typical of comparable size of any on the earth. These same conditions point to a single political unit. Arguing from geographical relations simply, and not considering the racial differences and local self-interests, the one boundary in North America should be the shore boundary, except at the 30-mile-wide Isthmus of Panama."

In illustration of this chapter, a coloured map is given, showing in vividly contrasting pink and blue the areas respectively under "two radically different principles of government—the monarchical and the republican," or "the countries self-governed" and "those still acknowledging allegiance to hereditary rulers."

But surely there is a touch of unscientific prejudice in the insistence upon this distinction. Is not the Government of Canada to all intents, except in name, as purely democratic as that of the States—nay, is it not even more democratic when we take count of the political state of the negroes, the Indians, and the Chinese immigrants south of the border? And shall San Domingo and the Central American "republics" bear the colour of Freedom on the map which is denied to the Dominion?

Throughout the book we find that the author is at his best when describing those portions of the continent which lie within the States, but this is pardonable, or even commendable, since he is thus the better able to give the acceptable tinge of personal experience to his descriptions. Nevertheless, it is probable that Canadian geographers will feel that the background of the picture is sometimes a little out of perspective. Certainly they will object that the name of their charming mountain-resort Banff should be spelt *Bamf* (p. 126). G. W. L.

TWO METHODS OF DEFENDING FREE TRADE.

The Return to Protection. By William Smart, M.A., D.Phil., LL.D., Adam Smith Professor of Political Economy in the University of Glasgow. Pp. x+284. (London: Macmillan and Co., Ltd., 1904.) Price 5s. net.

Free Trade. By the Right Hon. Lord Avebury, P.C. Pp. x+164. (London: Macmillan and Co., Ltd., 1904.) Price 5s. net.

NOW that everyone has made up his mind as to the advisability or not of an alteration of our fiscal policy, and the question is relegated to the